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(For details see pp. 11-12)

- **Bank debits in Oregon** in April were up 9.3 per cent above those in April 1959 and 1.9 per cent higher than the March 1960 totals. All areas of the state except the Baker, La Grande area, and the Burns area shared in the year-to-year gain, and the totals for seven of the eleven areas showed increases over those of March 1959.

- **Wage and salary employment** (nonagricultural) in April rose 2.6 per cent above the year-earlier level and showed a 1.7 per cent increase over that of March 1960. All seven major classifications shared in the monthly increase, and all except lumber and wood products showed gains on a year-to-year basis.

- **The index of man hours** in manufacturing (1951=100) rose to 87.7 in April 1960. This is above the April 1959 index of 87.2 and also higher than the March 1960 index of 85.3.

- **Average weekly earnings** of production workers in nonagricultural industry in Oregon rose to $98.96 in April from the $96.47 average in March. The current figure is a 2.5 per cent increase over the April 1959 average of $96.53.

- **Lumber production** in the Douglas fir region of the Pacific Northwest in April showed practically no change when compared with weekly average production in April 1959, but current production was 4 per cent lower than that of one month earlier. New orders for lumber were 12 per cent below those of April 1959, but increased 8 per cent over those of March 1960. At the end of April the total of unfilled orders was 3 per cent below that of the previous month, but 7 per cent below that of April 1959. Lumber inventory at the end of April was up 35 per cent from that of a year ago, and up 2 per cent from that at the end of March 1960.

- **Value of building permits** issued in Oregon during April was 9 per cent below that of April 1959, but rose 14 per cent above the total for March 1960.

- **Business failures** in Oregon in April totaled 49 and involved liabilities of $995,000. In April a year ago there were 29 failures with liabilities of $497,000. Cumulative totals for the first four months of 1960 were 181 failures with liabilities of $4,228,000, and for the comparable period of 1959 were 146 failures with liabilities of $3,082,000.

- **Construction contracts** awarded in Oregon in March had a total value of $29,794,000, an increase of 8 per cent over the value in March 1959, and an increase of 44 per cent over the total for February 1960.

- **Cash receipts from farm marketings** totaled $74,077,000 for the first three months of 1960. Compared with the total for the same period last year, this shows a decrease of 7 per cent.

Increasing the Allowable Cut From Federal Forests In Western Oregon

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The sustained-yield forestry practices on the Federal forests are beginning to pinch the forest industries of western Oregon. There have been numerous complaints and attempts to get a looser fit. But it appears that the foot will have to shrink, for the shoe will not be stretched much.

The amount of cut on the Federal forests is determined by the policy of converting an old-growth forest to a sustained-yield second growth forest. This did not trouble the forest industries until private timber became scarce. But the end of private timber is now in sight for the many companies that do not have large land holdings, and there simply won't be enough timber for everyone if the present cut on the Federal forests is continued.

The most obvious way to increase the cut on the Federal land is to change the method of figuring the cut. Clearly, the thing to change is the rotation age: the length of time which is considered necessary to grow the kinds of trees the Federal agencies want. The shorter the rotation age, the greater can be the present cut of the remaining old-growth timber on the Federal lands. Most of the Federal forest lands are now managed on a rotation of 100 years and up. Some private firms think that a rotation of 80 years is ample.

This article will first describe the ideas and procedures that guide foresters in selecting a rotation age. There will follow a review of the reasons for the present shortage of timber facing most firms. A consideration of alternative ways of increasing the cut from Federal lands follows. Factors accounting for differences in the rotation age selected by different land-managing agencies will be discussed; the differences between private and public management, and between the Bureau of Land Management (BLM) and the U. S. Forest Service will be examined. Finally, there will be pointed out some of the consequences facing the forest industries of western Oregon as a result of the situation now developing.

Allowable cut. We shall need a simple introduction to forestry to understand the idea of allowable cut. The first thing to know is that the purpose of forestry on large public and private holdings in Oregon is to convert an unmanaged forest containing much old-growth timber into a managed forest containing only second-growth timber. In a managed forest in condition for sustained yield, the allowable cut will approximately equal the annual growth. Sustained yield means that the growth and cut will be in approximate balance forever. The problem of management in Oregon is to achieve a "managed" forest in the shortest possible time. In order to do this, the forest must be cut at a rate calculated to convert it to a "normal," or ideal, forest for sustained-yield management.

The "normal" forest has an ideal number and spacing of trees to grow a specified product in a specified length of time. There is an equal area of land covered with stands of trees in each class between just-cut and just-about-to-be-cut. The time needed to grow the specified product is called the rotation age: in Oregon, the time required to grow sawtimber.

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The allowable cut is the annual cut that will convert the unmanaged forest to a managed forest. It is "the average volume that may be harvested annually from a given forest unit which will result in the eventual attainment and perpetuation of an approximately normal distribution of age classes, normal stocking, and a sustained yield." (5) *

Most of the cut will come from stands past rotation age, the mature timber, until the forest has been converted to a managed forest. Then there will be no stands past rotation age, and growth and cut will be kept in approximate balance. The rate of cut during the conversion period is greater than the cut that can be sustained after management is achieved. This is so because the stands now being cut are older and have larger timber volumes per acre than the managed stands will have. We shall also see that the trees will be smaller on the average, and will be lower in quality than the trees now being cut.

The method of figuring allowable cut on an industrial tree farm is demonstrated by an excerpt from a report of the Weyerhaeuser Company: "... specific areas of land are allocated to each of our operating branches and the allowable cut is determined for each of these areas ... The inventory of all of the company forest lands in any one of the branch areas includes, among other factors, the age, site quality (productive capacity), stocking, and present volume of the stands on these lands. For ease of handling the mass of data involved, the details of the forest inventory are punched on business machine cards, enabling the information to be sorted in any manner desired. For cutting budget calculations, the acreage of all stands is sorted and listed in descending order of age and by site quality and stocking within each age class. The personnel making the allowable cut determination have a pretty definite idea of what annual cut the area will support and an assumed annual rate is selected for trial. The merchantable volume of the static mature timber is divided by the assumed annual cutting rate to determine the cutting period provided by that class of timber. Next, for the oldest immature age class the cutting yield is determined from yield tables on the basis of cutting age (present age plus cutting period of previous age class), site quality and stocking. This volume is then divided by the annual cutting rate giving the cutting period in this age class. Each succeeding age class is then treated in the same manner and the process is continued through all the stands. The minimum cutting age and the total cutting period as determined from the foregoing should conform as closely as possible to the adopted rotation age. Several of these calculations are made with different annual cutting rates to determine the proper rate." (8)

* The numbers in parentheses refer to items in the bibliography appearing at the end of this article.

An examination of the procedures just described shows that the rotation age is one of the most important figures in determining the cut, and especially in determining the rate of cut of the mature timber.

Selection of rotation age. Many criteria may be used in selecting the rotation age, some economic and some physical. In effect, the Federal agencies and the large private companies use both economic and physical criteria; but the physical criteria seem to dominate. The selection of the desired product from the land is based on economic factors; the chief factor is the market for forest products. Sawlogs are the principal products demanded from forest land in western Oregon, and this is likely to be true for a long time to come. When the desired product has been selected, the lowest possible age limit of the rotation is fixed for each piece of ground: the minimum length of time to grow a pulp stick or a sawlog. But there is a range of ages above this lower limit within which judgments must be made. Much has been written about precise economic criteria for selecting the proper rotation age, but these methods are not practiced in western Oregon, nor in the United States generally. The usual practice is to select the age which will give the greatest average annual growth of wood, as measured in some product equivalent, such as board feet.

Differences in the rotation age selected by forest managers may be accounted for by differences in physical and economic factors, and by differences in policy. These factors will be discussed in some detail later. But now we will consider the reasons for the present demand to increase the cut of logs from Federal forests.

To understand the present situation we shall have to review some recent history. During the late thirties, while the country was recovering from the depression, there were many predictions that "the economy was about to mature." Population would level off, and the production of many commodities would stabilize or even decline. The outlook for forest products was gloomy. Whatever the reason, it is a matter of history that there were few firms interested in keeping timberland and managing it for future production. Andrew and Cowlin wrote in 1940, "The concept of forest land as a resource to be managed on a sustained-yield basis has attained scant realization among private forest owners here. Beset by adverse economic factors, nearly all private owners are directing their efforts toward early liquidation of their standing timber." (1)

However, there were some timber owners who did not dispose of their land, and they were joined by an increasing number of companies as the belief grew that the forest industries could be a continuing source of profit. After the second World War competition for timber and for stocked young-growth stands of all ages became acute. The pre-war trend was reversed completely, and the large tree farm became the assurance of long-term operation for the few companies that had capital. The majority of the sawtimber is owned today by the Federal agencies and the large forest industries. Most of the large private owners are planning to stretch out their supplies of mature timber well into the future. The Weyerhaeuser Company, for example, is planning to cut against reserves of mature timber for a period of approximately 50 years, "... a period which we have calculated to be necessary to carry

us through the transition to a true sustained yield basis." (7) The many small owners each own a small share of the land; few of them own enough to permit a sustained yield program. At best they can only hold off cutting as long as possible; the short run picture is for rapid depletion of timber on small private holdings.

In the whole Douglas fir region 38 per cent of the commercial forest *land* is owned by the Federal and Indian agencies and 54 per cent by private owners. Of the commercial sawtimber *volume* in the Douglas fir region, 48 per cent is owned by Federal and Indian agencies and 46 per cent is privately owned. In western Oregon, of approximately 14.7 million acres of commercial forest land, 6.8 million acres, or 46 per cent, are in private ownership. The estimated total volume of merchantable timber in western Oregon is 324 billion board feet, and 30 per cent of this, or 97 billion board feet, is privately owned. The foregoing figures show that western Oregon has a lower proportion of timberland in private ownership than has the Douglas fir region as a whole.

There is considerable concentration of ownership of private commercial forest land and it is increasing. In 1955 ten private companies owned and estimated 40 billion board feet of commercial timber in Oregon. This was about 29 per cent of the total estimated volume of live sawtimber on private lands in the state. (4) In Lane County, over 90 per cent of the privately owned sawtimber is owned by seven large owners, and there are fewer than 40 landowners having more than 40 acres of sawtimber in this large county. (6)

The small private holdings in western Oregon have been overcut in recent years while the Federal lands have been undercut. Only about one-quarter of the cut since the end of the second World War has come from the Federal forests. Most of the remaining three-quarters came from the privately owned forest land. During most of this period, more timber was offered by the Federal agencies than was cut. The following table shows the imbalance between actual cut and allowable cut since 1945 in Federal forest lands.

ALLOWABLE CUT AND ACTUAL CUT ON NATIONAL FORESTS IN WESTERN OREGON 1945-1958

(in billions of board feet)

Years	*Annual Allowable Cut*	*Annual Cut, 1945-1954*	*Annual Loss of Allowable Cut*
1945-1949	1,627	484	1,143
1950-1954	1,627	904	723
1955	1,627	1,170	457
1956	1,627	1,160	467
1957	1,627	1,010	617
1958	1,627	1,380	247
Totals	22,775	11,664	11,111

Source: U. S. Forest Service.

The above figures indicate a substantial loss of the allowable cut from the National Forests of western Oregon. The loss has decreased and may be almost eliminated in the near future.

The seriousness of the situation that now faces the forest industries in western Oregon is pointed up by a recent speech made by George Weyerhaeuser. With his permission, his remarks have been edited:

"Throughout 1952-1957, the average annual cut from public and private lands in western Oregon was 7.3 billion feet. Of this annual total, 5.56 billion board feet were cut from private lands and only 1.77 billion feet from publicly-owned forests.

"Thus, while the private lands comprise less than half of the total commercial forest land in western Oregon, they have been contributing more than three-quarters of the total annual cut.

"Of approximately 14.7 million acres of commercial forest lands in western Oregon, 6.8 million acres, or 46 per cent, are in private ownership. The estimated total volume of merchantable timber in western Oregon is 324 billion board feet. Of this, approximately 30 per cent is in private ownership (97 billion bf).

"... it is alarming to note that if the last five years' average rate of cut of privately-owned merchantable timber were to be continued at the same rate, with no increase in the future, all of the privately owned reserves of merchantable timber would be exhausted in less than 20 years.

"... because some operators are on a sustained yield basis, their reserves of mature timber will last for considerably longer periods, while others will be depleted within the next few years

"At the rate they are now being depleted, over half of the privately owned timber inventories will be exhausted in a little more than ten years ... assuming no acceleration of the current rate of cut on the other half of the inventories, we can expect that sometime between 1970 and 1975 the annual cut from existing privately-owned merchantable timber will drop by approximately 4 billion feet. This is over half of the total annual cut necessary to sustain the wood products industry in western Oregon at its existing levels." (7)

The reference to a drop in cut of four billion board feet after 1970-1975 indicates an estimate of cutting on liquidating ownerships of about four billion feet per year. "... over half of the privately owned timber inventories will be exhausted in a little more than ten years," combined with the other estimate is about 50 billion board feet in liquidating private ownerships, which liquidation is expected to be completed in 11 to 15 years. His estimate of the cut from private sustained-yield operations is then about 1.5 to 1.6 billion board feet per year. A very real crisis is in the making for most of the firms in the forest industries which depend on privately owned timber.

The most interesting estimates in the Weyerhaeuser speech are those of the imbalance between growth and cut, and between cut and demand, under conditions foreseeable in western Oregon after 1975. According to the Weyerhaeuser estimates, most of the cut after this time will come from mature timber on Federal lands, from mature and large second growth on the lands of the large private sustained-yield operations, and from second growth on all other private lands.

After 1975 (apparently assuming public and private policy that will prevent serious reduction of the growing stock) the Weyerhaeuser Company estimates a cut of between 4.5 and 5.5 billion board feet per year. The cut would come from the following sources:

1.1 billion bf		growth on all private forest land
1.6	"	" cut from mature timber on large private holdings
1.8	"	" approximate present cut on public lands
1.0	"	" maximum possible increase in Federal cut
5.5	"	" maximum possible sustained yield cut in western Oregon

The maximum possible increase in the Federal cut estimated by Weyerhaeuser is postulated on drastic changes in forest management by the Federal agencies, principally a substantial lowering of the rotation age. Such drastic changes seem unlikely, as will be shown later in this article.

Using some recent information from the Forest Service and the BLM, and some of the Weyerhaeuser estimates given above, I will add one more to the many estimates that have been made of the allowable cut in western Oregon after 1975:

1.1 billion bf		growth on all private forest land (Weyerhaeuser)
1.6	"	" cut from mature timber on large private holdings
1.6	"	" allowable cut on National Forests (USFS)
0.8	"	" allowable cut on BLM land (BLM)
5.1	"	" Allowable cut on western Oregon forest after depletion of small ownerships.

The actual log production in western Oregon in the period 1952 to 1957 averaged 7.3 billion board feet per year. Presumably, the difference between the allowable cut and the actual cut is made up mostly by the cutting of large timber on the smaller private holdings. (Actually there is also a sizable cut of immature second-growth timber.) If cut were to be reduced to about 5.0 billion feet per year after the depletion of the large timber on the smaller private holdings, this would mean a reduction in log supply to the industry of about 30 per cent.

The only way in which this drastic reduction can be avoided in the future, assuming that sustained-yield forestry is going to be practiced, is to reduce the present cut on these smaller ownerships to a rate that permits the orderly development of sustained-yield forest management on these properties. However, such action is extremely unlikely.

Increasing the Cut from Federal Forest Lands. The following operations are the most important ways in which the cut of logs from the Federal forest lands could be increased: (1) increase the areas available for cutting by transferring special use areas, such as recreation areas, to timber production; (2) change regulations and procedures to permit an increased cut over the short term, for example, by reducing the rotation age; (3) increase the areas available for cutting by extending the road net over more of the area; (4) increase salvage operations to remove more dead and dying timber; (5) increase thinning operations; (6) make more frequent and better inventories of timber; (7) base the cut on local physical conditions; use local empirical yield tables. The first two steps would amount to a basic change in policy; the last five require only more intensive application of present policies and will be reviewed here.

Extension of the road net. The effect of extending the road net is to increase the area available for final logging, thinning, and salvage, and thus add to the realizable cut. Part of the job of extending the road net is financial, requiring Congressional appropriations, and part is procedural, requiring aggressive condemnation of rights of way across private lands. The Forest Service and BLM have been strongly urged to increase condemnation proceedings. An expanded condemnation program requires more staff at all levels of administration and also more expenditures on roads in order to use the condemned rights of way. The BLM has an ambitious program underway for improving access to holdings, a program which will take 25 years to complete. The Forest Service program has been hampered by lack of money.

Increase of salvage sales. Thinning and salvage sales could increase the realizable cut, but only thinning could increase the allowable cut. Increased roadbuilding could open more areas for salvage of down timber, and there could be some increase in relogging. But the major volumes of salvable material of any size would probably be cleaned up in no more than ten years. After that, salvage would continue on a much smaller scale, to clean up disease and insect infested stands, and to salvage blowdown. The systematic salvage of dead and dying trees will be part of the thinning operation in the managed forests.

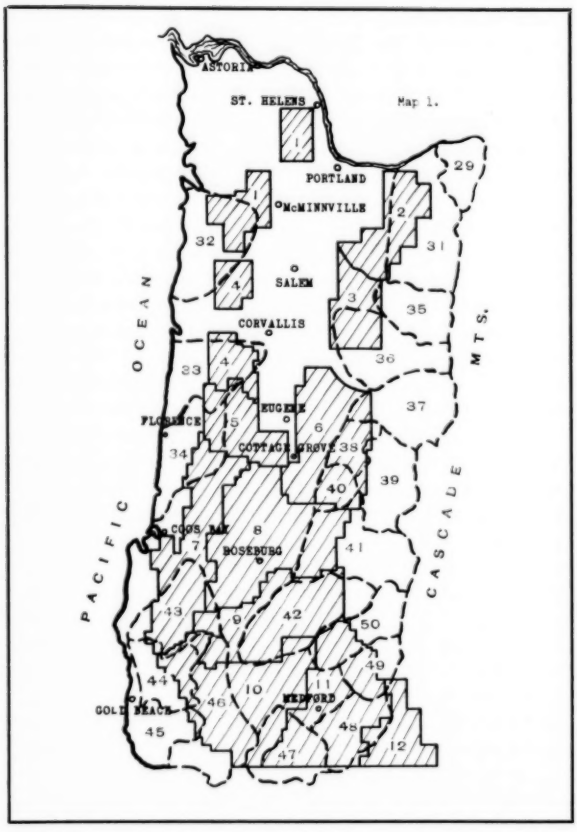
Increase of thinning sales. This is one source of logs that is just being tapped. Both the Forest Service and the Bureau of Land Management have had thinning sales, but in relatively small volume. They are now expanding these sales where markets permit. According to the Forest Service: "The inclusion of thinnings will probably be the next substantial increase made in allowable cut in the region. Better markets and a high level of forestry will eventually make it possible to reach potential production from the national forest lands in Region 6." (10)

Improvement of inventories. The cutting programs on all managed forests are based on timber inventories. The cutting programs on many Federal lands are based on old inventories. When new inventories are made, the new volume, and therefore the new allowable cut is usually, but not always, larger. This is true on BLM as well as Forest Service land. The Federal agencies are now trying to program new inventories every ten years on each area. This requires increased appropriations. The following table shows the effect of recent inventories in raising the known volume on the Willamette National Forest. (However, new inventories do not necessarily find more timber: some find less.)

CHANGE IN COMMERCIAL SAWTIMBER VOLUME ON WILLAMETTE NATIONAL FOREST WORKING CIRCLES

	Old Inventory		*New Inventory*		
	Date	*Volume Billions bf*	*Date*	*Volume Billions bf*	*% Change*
Lowell	1943	4.8	1954	7.7	+ 60
McKenzie	1943	3.7	1957	14.5	+292
N. Santiam	1946	3.9	1956	8.4	+115
Oakridge	1943	10.7	1957	23.5	+120
S. Santiam	1945	4.7	Inventory under way		
Total Volume		27.8		54.1 (partial)	

Use of empirical yield tables. In the past most growth predictions for Douglas fir forests in western Oregon were made on the basis of a 1927 Forest Service study of growth experience for the entire Douglas fir region.(2) The normal yield tables developed by this study have been the basis for most calculations of allowable cut made in



Approximate locations of USFS and BLM lands in western Oregon. BLM holdings are identified by the cross-hatched areas. Forest Service holdings are outlined by the heavy dashed lines. The numbers identify the BLM Management Units and the USFS Working Circles.

BLM MANAGEMENT UNITS

1. Columbia River
2. Clackamas-Molalla
3. Santiam River
4. Alsea-Rickreall
5. Siuslaw River
6. Upper Willamette
7. South Coast
8. Douglas
9. South Umpqua
10. Josephine
11. Jackson
12. Klamath

USFS WORKING CIRCLES

29. Hood River
31. Clackamas-Sandy
32. Hebo
33. Waldport
34. Mapleton
35. North Santiam
36. South Santiam
37. McKenzie
38. Lowell
39. Oakridge
40. Cottage Grove
41. North Umpqua
42. South Umpqua
43. Coquille
44. Rogue River
45. Chetco
46. Josephine
47. Applegate
48. Ashland
49. Butte Falls
50. Rogue River

the region. Normal yield tables show the volume at different ages in an ideal natural forest which is fully stocked and growing on land of a given growth capacity or site quality. Empirical yield tables differ from normal yield tables in being based on actual local conditions, not on ideal conditions over a large area. The empirical tables will usually show lower volumes per acre than do the normal yield tables. However, contrary to general belief, they do not always justify a shorter rotation than do the normal yield tables. The empirical yield tables are made from data collected in new inventories. Combined with better data they permit more realistic management of forest land: this is their special value.

Examination of the above programs leads to one inescapable conclusion: more timber production from a managed forest costs money. Intensive management requires an accurate knowledge of the location of the different kinds of timber and of the growing capacity of the land; and it requires intensive cultivation of this land area and timber volume to reap the largest possible harvest. It is an obvious truth in forestry as in farming that more production from the same area requires more investment in the same area. Additional staff in the Federal agencies will be necessary in order to have an appreciable effect on the cut through the more intensive application of present policies; and other operating budgets will also have to be increased. Most of this additional money will have to come from increased appropriations, which require Congressional action. Thus, the continuing health of the forest economy of western Oregon depends in some measure on the cooperation of the representatives of the rest of the country.

Reasons for Differences in Rotation Age. Differences in the rotation age selected may be accounted for by differences in physical productivity, economic factors, and policy. We shall first consider physical and economic differences between private and Federal land, and between the two kinds of Federal land. We shall then consider the differences of policy of the various agents.

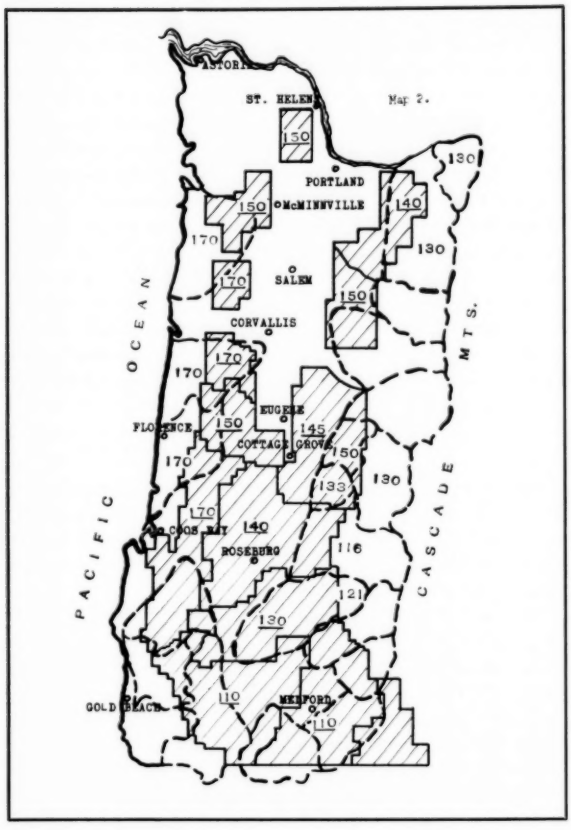
Physical and Economic Differences. There are some important physical differences in location between the lands managed by the Forest Service, the BLM, and private companies, resulting in differences in growth capacity. Because the National Forests were created primarily for watershed protection, they are located mostly on the upper slopes of the mountains in western Oregon. Most of the BLM lands were originally granted to finance railroad and wagon road construction, and were within 30 miles of the proposed rights of way. Most BLM land is in the foothills of the mountains, generally lower in elevation than the National Forests. Most of the private land is in the foothills and valleys. There are, however, many instances of intermingling of private and Federal lands (See Map 1).

The lower areas not only have a generally better site for growing trees; they also are closer to desirable mill sites and have more favorable weather conditions for management and harvesting operations.

The higher a stand is located, the farther it is likely to be from the valley settlements where the mills are located, the more expensive the logging and road-building is likely to be, the thinner is the soil, and the lower the growth capacity. In short, the greater are the costs and the lower are the returns as one goes up the mountainside (See Map 2).

Differences in Policy. In addition to the differences in location and quality of land which affect the amount of allowable cut, the policies of different land managing agents also affect the amount of allowable cut from forest land. Each private company has a unique policy, but we may say that the general policy of private sustained yield management is to produce as much wood as possible with the available budget. The policies of the Federal agencies are not so single-minded as this, though the policy of the Bureau of Land Management is close to it. Let us compare the policies of the Forest Service and of the BLM.

Region Six of the Forest Service, which manages the National Forests in western Oregon, is guided by the following policies:



Site Indexes for Federal forest management units. Site index measures the average growth ability or growth capacity of an area for growing trees. It is based on the height that the taller trees in a well-stocked stand will attain at age 100 years. On an average site, trees will be 130 to 150 feet high at 100 years. On a first-class site, trees will be 190 to 210 feet high at 100 years. On a very poor site, trees will be less than 90 feet high at 100 years. (Note that site indexes for BLM lands are underlined, indexes for USFS are not.)

1. Maintain an even flow of products to help stabilize industry.
2. Produce sawlogs as the major product.
3. Strive for maximum production; i.e., have the ground produce the maximum number of boards possible.
4. Adhere to the principle of multiple use.

The policies are applied in the National Forests of western Oregon in this manner: ". . . . Once main objectives are set, the next step is to obtain a picture of the resource. This includes an expression of average site: a tabulation of type areas; volume per acre and total volume, by species; and acres within the various age classes. Some areas have been reserved from all cutting. These include such reservations as wild, wilderness, primitive, and natural areas. These are deducted from the total resource. The resource within restricted areas is also deducted. Included in this category are those areas where timber production is not the dominant use: limited areas, recreational areas, summer home sites, campgrounds, administrative sites, roadside strips, streamside strips, etc. When these deductions have been made the remainder is the acreage and volume to use in the calculation of cut.

"Probably no one item affects allowable annual cut more than rotation. Since we wish to grow sawlogs, and obtain maximum production, a rotation is selected where growth per acre per year is maximum for the rotation. This is usually referred to as culmination of mean annual increment. This is the normal yield divided by years (rotation). This calculation gives indicated rotation age.

"In the interests of sustaining an even flow of products it is desirable to avoid any interruption of the cut. One might argue that our old-growth timber is old and not growing and should, therefore, be cut. This is true but a calculation of cut is made to parcel it out, so to speak, so that the change from an old growth to a second-growth economy may be made without upsetting industry." (10)

The Bureau of Land Management policy follows: "The basic authority for the sustained yield program on the O&C lands is the Act of August 28, 1937. It provides that all BLM lands to be managed for timber shall be managed for permanent forest production, in conformity with the principle of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow and contributing to the economic stability of local communities and industries, and providing recreational facilities. In action in western Oregon, these directives have been interpreted as calling for the conversion of the existing forests to a sustained-yield condition, with a balanced distribution of age classes, and with the management designed to produce a maximum amount of sawlogs." (9)

This policy statement is similar to that of the Forest Service, except that there is little emphasis on recreation and other special uses. However, there appear to be important differences in the procedures used in calculating allowable cut.

Differences in Procedure. The inventory procedures used by the Bureau of Land Management are similar to those used by the Forest Service. Both agencies are setting up a continuous inventory system based on the measurement of permanently established plots in the woods. Both use similar procedures in calculations with the data collected in this way, but there is a difference in emphasis in interpreting the data.

The Bureau of Land Management calculates the age of stand which gives the maximum annual growth on the basis of existing forest conditions. "The length of the cutting period (rotation) is to be determined by the culmination of mean annual increment expressed in board feet, Scribner Decimal C Log Rule, as indicated by a machine calculated second or third degree curve of mean annual increment over stand age." (9) The Forest Service also does this calculation, but apparently is not so strongly influenced by it.

What this difference amounts to is that the BLM is apparently most guided by the rotation age that would give the greatest growth under present conditions, *before* the forest is converted to a managed condition, while the Forest Service is most guided by the rotation age that would give the greatest growth *after* the forest has been converted to a managed condition.

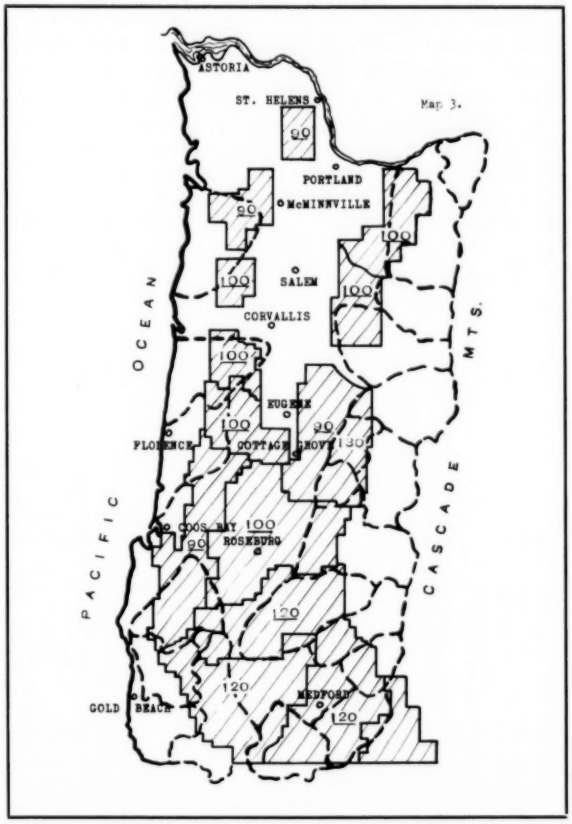
In both cases, the objective is the same: to convert an unmanaged forest into a managed forest, with a uniform distribution of age classes, and with all stands being as ideally stocked with trees as possible. The Forest Service apparently assumes that the managed forest will be fully

stocked, and so bases its choice of the rotation age on information about the growth that will be expected in a fully stocked forest. That is why the Forest Service uses the normal yield table for selecting the trial rotation age. The BLM is also trying to develop a managed and fully stocked forest, but is most guided in the selection of the rotation age by growth experience in stands which are not fully stocked. Neither agency uses the trial figure as a final estimate of the rotation age. Each adjusts the rotation age in light of local factors. But each is apparently strongly influenced by the first trial figure.

Most BLM areas in western Oregon are managed on a rotation of 100 years. There is one area with a rotation age of 120 years, one with a rotation age of 80 years, and at least three with rotation ages of 90 years (See Map 3). Adjustments in the near future will probably result in a further lowering of some rotation ages.

Most areas managed by the Forest Service are operated on the basis of rotation ages of 100 years and up. All of the Siuslaw National Forest is operated on a 100 year rotation. Most of the other forests and working circles are operated with higher rotation ages, some up to 150 years (See Map 3).

It would be necessary to determine rotation ages by both methods for one or two areas before an accurate statement could be made as to precise differences; but it appears that the BLM method will give lower rotation ages, and therefore a higher cut over the conversion period, than will the Forest Service method. However, appearances may be deceiving. Physical and economic conditions on BLM land permit lower rotations than do conditions on Forest Service land. The difference, then, is probably accounted for by both a difference in location and a difference in policy and procedures.



Rotation ages on Federal forests in western Oregon. Rotation age is the average age which timber will attain at time of cutting when forest is converted to a managed second-growth. Rotation ages for BLM Management Units are underlined. Note that there are only two Forest Service Working Circles with rotation ages. These are the only two which have had new cutting plans completed and approved by the Chief Forester's office.

Probable Effects of the Situation Now Developing. From the information presented above we can see that if the forests of western Oregon are cut by a method that will convert the forest to a managed or sustained-yield basis there will be eventually a sizable reduction in the volume of logs available to the industry. There will also be a gradual reduction in the average size of the logs cut as young-growth timber becomes a larger proportion of the total cut. When the conversion to a sustained yield forest has been achieved, the average size of the trees cut and of the logs cut from them will be substantially smaller than the average today; only a small proportion of the logs will be of large diameter. The higher the present allowable cut from existing forests is set, the less will be the immediate hardship on the industry. But the sooner will the industry be faced with the economic problems of dealing with a smaller average size of log, and even of a sudden drastic reduction in volume of logs available.

According to the Weyerhaeuser estimates, at the present rate of cutting on private land all the merchantable reserves of private timber in western Oregon will be depleted in 20 years. Similarly, at the present rate of cutting, *all* the merchantable timber now standing in western Oregon will be depleted in about 44 years. All of the large old-growth timber will be cut before the year 2000. If the industry has to operate on what is left after such a high level of cutting on large timber there may be severe economic dislocation in the region. Not only will there be much less timber to go around but it will be much smaller than the average industry is now geared to. Even with an orderly progression toward an economy based on managed forests there will be a serious reduction in the average size of logs; but the reduction will be gradual. A high level of cutting will result in a sudden drop in average log size for most of the industry at the time when the old-growth is largely depleted.

The following table shows the percentage distribution of live sawtimber in the Douglas fir region by diameter size classes of the standing trees; it is an index of the log sizes now going to mills in this region. Note that about 60 per cent of the standing sawtimber volume is in trees over 30 inches in diameter.

DISTRIBUTION OF LIVE SAWTIMBER IN THE DOUGLAS FIR REGION BY SIZE CLASS, 1952

Diameter Class in Inches	*Percentage of Total Sawtimber Volume in Each Size Class*
11.0"-20.9"	15.4
21.0"-30.9"	24.2
31.0"-40.9"	22.3
41.0" and larger	38.3

Source: Timber Resource Review, 1955.

The next table indicates the average size of trees, and the average volumes per acre that could be expected under

very good management after the forests are converted to a sustained yield condition. The figures are for fully stocked stands, and therefore should be modified to express reality. Most stands will be understocked. As a result they will have larger average diameters and lower volumes per acre than indicated by this table. But the average diameters will still be significantly smaller than the average size being cut today. Site III is average: note that the average diameter of trees at 110 years of age is only 19.2 inches. The average volume per tree in such a forest would be about 510 board feet (Scribner); not a very big tree, and the average log in such a stand would not be very impressive.

CHARACTERISTICS OF TREES AND STANDS OF DOUGLAS FIR AT AGES GIVING MAXIMUM MEAN ANNUAL INCREMENT PER ACRE, BY SITE CLASS

Site Class	*Average Height of Tallest Trees at 100 Yrs. of Age (in feet)*	*Age At Which Average Annual Increment Is Greatest*	*Maximum Average Annual Increment Attained*	*Diameter of Average Tree At Age of Maximum Average Increment*
I	200	90	1,160	25.6
II	170	100	902	21.8
III	140	110	630	19.2
IV	110	140	349	17.7
V	90	160	140	16.4

Source: U.S. Dept. of Agriculture, Technical Bulletin 201.

The following table shows the average diameters of trees that will be produced from most of the forest land in the Douglas Fir region when all the cut is from second growth, grown on a short rotation. The table lists the average tree size for sites II, III, and IV, the most important areas supplying trees. Ages of 80 to 110 years only are considered, since this is the age range within which discussion of rotation ages is centered.

DIAMETER OF AVERAGE TREE AT BREAST HEIGHT OF DOUGLAS FIR ON A FULLY STOCKED ACRE, TREES 12 INCHES IN DIAMETER AND LARGER, BY SITE CLASS AND AGE

Age In Years	*Diameter In Inches, Of Average Trees At Breast Height, By Site Class*		
	II	III	IV
80	19.0	16.5	14.6
90	20.4	17.4	15.1
100	21.8	18.4	15.7
110	23.1	19.2	16.2

Source: U. S. Dept. of Agriculture, Technical Bulletin 201.

With a smaller average size of tree and log, the costs of logging and milling would be substantially increased and the grade and product realization would be substantially reduced. It is well known that the cost of handling big logs and trees is smaller per thousand board feet than the cost of handling small logs and trees. What is not as widely understood is that the kind and quality of products is affected seriously by such a reduction in log size as we contemplate. Smaller logs have less clear material than have large logs, unless pruning has been done. Also, only small timbers can be cut from small logs. The Douglas Fir region has enjoyed a considerable advantage in competing in national markets with southern and eastern producers because of the low cost of production, the higher quality of material, and the ability to supply large and long timbers. Smaller logs will reduce this advantage.

The smaller log size and lower volume per acre will affect all firms, but a severe dislocation seems inevitable for the smaller firms in the lumber industry. This dislocation will not only be from the size of logs used, but also from the necessity to change their source of logs from that of small private holdings to Federal forests. Most small and many medium sized mills get the majority of their logs from private land. For example, in Lane County, mills having daily capacity of less than 40 thousand board feet per day obtained 84 per cent of their logs from private land in 1955; mills having daily capacity of between 40 and 80 thousand board feet per day obtained about 61 per cent of their logs from private land. (3) The lands from which most of these logs come will be depleted in ten to fifteen years. After this time many mills cutting less than 80 thousand board feet per day will have to adjust to use of Federal timber if they are to stay in business. In order to get Federal stumpage in the future, such mills will have to bid against other mills for a resource that will be in short supply, especially during good years. In the meantime they will be bidding against other mills for private stumpage which will be increasingly scarce and therefore increasingly costly.

Most of the large sawtimber is expected to be removed before 1975 from private lands not in control of the larger firms. Then there will be an important qualitative difference in the forest industries, the culmination of a change that has been taking place for some time. There will be roughly three classes of forest land: (1) Federal and state forest lands, managed on a sustained yield basis; (2) large private holdings, mostly managed on a sustained yield basis; and (3) small private holdings, mostly poorly managed and with relatively small amounts of available timber. The larger firms which own their own land will be in a position to retain a greater proportion of the money they realize from the sale of products than will the small firms because of the opportunity to claim a capital gain on the stumpage used. Firms which purchase all stumpage often cannot claim a capital gain and therefore much of their profits will be subject to taxation as conversion profit, which bears a higher tax rate than does capital gain. The implications of this situation call for study in detail in a future paper.

Summary. From the preceding information it is fair to conclude there is a good reason for some segments of the forest industries in western Oregon to demand a greater cut from the Federal forests. It is also clear that the Federal agencies want to increase the cut from the Federal forests and have taken important steps to bring about such an increase. The most important steps, in effect, have been new and improved inventories and greater reliance on local growth information in calculating rotation age, expanded road nets, and salvage sales. The Federal agencies have clear policy directives to establish sustained yield forestry on land which they manage, though they do not interpret similar policies in the same way.

It is unlikely that there will be a general reduction of rotation age to the suggested 80 years on all Federal ownerships. Some BLM areas already operate on rotations of 80 and 90 years, but most of the BLM and Forest Service

holdings probably will operate on rotations of 100 years and up. A higher allowable cut probably will have to come from more intensive thinning and salvage, which will require increased budgets for the Federal forest managing agencies.

A strong position against reducing the rotation age below that which is technically determined was stated in a speech given in Portland last June by Richard E. McArdle, Chief of the Forest Service:

> "... regardless of pressure we will not overcut the national forests: we will not reduce rotation ages below what is technically desirable simply to rationalize increased cuts; we will not interpret sustained yield so that it becomes a floor rather than a ceiling; and we will continue to practice sustained yield even though many people now talk of allowable cut instead. We will not yield to these pressures even though some installed mill capacity goes out of business as some of it inevitably will." (11)

But no foreseeable increase in budget for the Federal agencies will bring about an increase in cut that will permit the forest industries of western Oregon to continue their present rate of cutting beyond ten or fifteen years. The picture for the future is that of a reduced cut when the smaller private ownerships are substantially depleted.

There will be important qualitative differences in the industry after this new status fully develops; these differences are already evident. On the one hand there will be a number of companies controlling enough private timber to supply all or a substantial part of their log needs. These companies will be able to claim a capital gain on the timber which they cut on their own land, and they will also be able to realize the profit on conversion. On the other hand there will be those companies who own no substantial amount of timber, and who will depend on a scarce resource, Federal timber, the price of which will be kept up by competitive bidding. The firms using this resource will have to make their profit on conversion. They will pay a higher proportion of their profit in taxes than will those companies which can claim a capital gain. The consequences of these differences cannot be foretold exactly, but clearly those companies which own substantial amounts of land will have important competitive advantages.

There can be no doubt that those mills which depend exclusively upon Federal timber will have a hard struggle for survival. A demand for more and cheaper stumpage is sure to ensue and the Federal agencies will be under severe and unremitting pressure to increase the cut.

Many firms which now get their logs from private land will have to start using Federal stumpage or go out of business. More active bidding for this scarce stumpage will squeeze conversion margins even further. Moreover, at a time when more efficient conversion demands more capital investment prudence will dictate less capital investment because of the uncertain supply of logs.

Under any circumstances the forest industry of western Oregon will be working with fewer logs and smaller logs in the future than it is now accustomed to having. Costs will be higher and competitive advantage will be less in the principal Eastern markets.

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New Pamphlet Published

Services Available to the Business Community is the title of a new publication of the School of Business Administration and General Extension Division. It is designed to acquaint people throughout the state with the variety of community services provided by divisions within the State System of Higher Education. Included is information about student oriented campus services, and business services for adults who are not regular students. Both individuals and organizations will find listed here the assistance they seek for professional development.

The pamphlet is illustrated with line drawings by Una McCann Wilkinson and is free upon request. Readers of the *Review* are invited to write the Dean of the School of Business Administration or the General Extension Division in Eugene for a copy of *Services Available to the Business Community*.

Report From the Bureau of Business Research

Six projects currently are underway at the Bureau of Business Research, University of Oregon. All activities of the Bureau are the responsibility of Professor Wesley C. Ballaine, who is the Director.

Professors D. A. Watson and R. E. Nelson are working virtually full time on a study of risk management practices of small businesses in Oregon. Financing for the project is by the Small Business Administration in Washington. The study was initiated in July 1959 and will be completed by October 1960. Professor Mark Greene was responsible for the study plan.

Mr. J. N. Tattersall has been released from part of his

regular teaching assignments to work on a study of the importance of foreign trade to the state of Oregon. This project is financed by the State Board of Higher Education and the State Board of Planning and Development. The study should be completed by early summer.

The Portland Commission of Public Docks is financing a study of certain economic values of the Port of Portland. Faculty members involved in the project are D. A. Watson, R. L. Sampson, and A. G. Homan. Work on this study will be completed by August 1.

The Bureau is preparing a manual to help local Chambers of Commerce and other groups organize development corporations, industrial park districts, and small business investment corporations. Mr. Clyde Browning is carrying out this particular assignment.

The Springfield Chamber of Commerce has commissioned the Bureau to prepare a pamphlet for industrial promotion in that city. Working on this project are Jeannette Lund and Catherine Lauris, under the direction of Dr. Ballaine.

The *Oregon Business Review* is published each month by the Bureau. The *Review* is edited by Mrs. Lauris, who is also editor for the first three projects listed above. Each of these studies requires a lengthy report.

Just completed by the Bureau is the 1960 edition of the *Oregon Economic Statistics*. This annual publication contains statistical information on economics, geography, and population, to list only a sample. About 60 series provide information on Oregon and the region. Statistical work for this book was done by Mrs. Lund under the direction of Professor D. A. Baerncopf. *Oregon Economic Statistics* sells for one dollar per copy.

Employment Changes: Lumber and Wood Products Industry

Average annual employment in Oregon in lumber and wood products, 1947-1959, is shown in the following table:

Year	Total, lumber and wood products	Veneer & plywood		Logging & sawmills	
	Number	*Number*	*Per cent**	*Number*	*Per cent**
1947	73,900	4,600	6.2	62,500	84.6
1948	80,300	5,200	6.5	68,600	85.4
1949	71,700	5,100	7.1	60,800	84.8
1950	80,000	6,500	8.1	67,200	84.0
1951	86,400	8,500	9.8	71,700	83.0
1952	84,500	10,200	12.1	68,600	81.2
1953	81,500	10,800	13.3	65,000	79.8
1954	76,100	11,000	14.5	60,500	79.5
1955	82,200	12,600	15.3	64,700	78.7
1956	79,000	14,300	18.1	59,600	75.4
1957	71,200	15,000	21.1	51,500	72.3
1958	69,800	18,500	26.5	45,700	65.5
1959	74,400	20,800	28.0	47,800	64.2

* Per cent of total employment in lumber and wood products.

Data for this table are from the Oregon State Department of Employment publication, *Labor Force in the State of Oregon and the Portland Metropolitan Area*, January 1960, and include workers who are covered and who are not covered by the Employment Act. The total lumber and wood products column includes workers in paper containers and miscellaneous wood products in addition to those in the two main categories shown.

Chart 1 plots the number of employees given in the table as number employed in each of the given years.

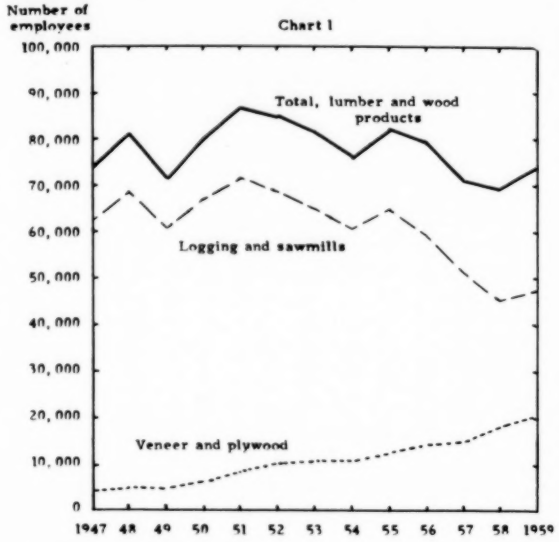
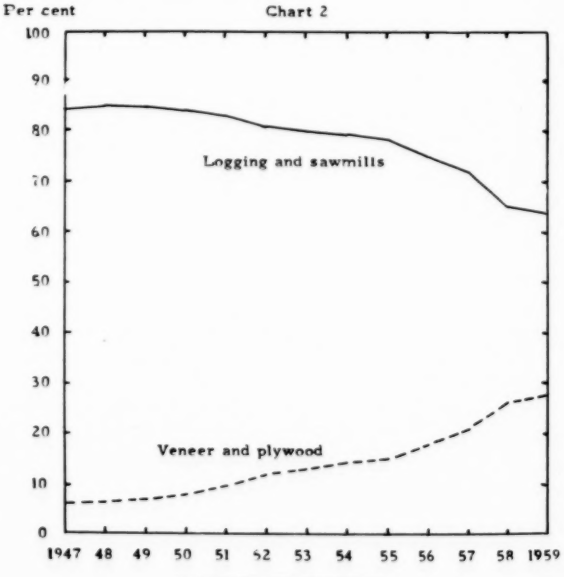


Chart 2 shows the distribution for the components, using the figure for total employment in lumber and wood products as 100 per cent for each year.



AUBBER Meets in Oregon

The staff of the Bureau of Business Research at the University of Oregon are very proud to announce that the annual conference of the Associated Bureaus of Business and Economic Research will meet on the Oregon campus, August 1, 1960.

Professor Wesley C. Ballaine, Director of the Oregon Bureau, is chairman of the committee for arrangements, and a member of the program committee. Ralph Cassady,

Jr., Director of the Bureau at the University of California in Los Angeles is program chairman. Included in plans for the three-day conference are a trip to the famous Oregon beaches and an address by John Richards, Chancellor of the Oregon State System of Higher Education. Other speakers who will talk to the group are A. Ross Eckler, Deputy Director of the Bureau of the Census, Washington, D. C., Marion Marks, from the marketing services staff of Crown-Zellerbach in San Francisco; and Charles Hamman, Assistant Director of Economic Research at Stanford Research Institute.

National president of the Association, which for convenience is known to its members as AUBBER, is George B. Huff, Director of the Bureau of Economic and Business Research at the University of Florida in Gainesville. Dr. Ballaine of Oregon is vice president.

OREGON STATISTICAL REVIEW

Employment. Information on employment in Oregon is reported each month by the State Department of Employment in Salem. The latest figures follow:

	Apr. 1960	*Mar. 1960*	*Apr. 1959*
Lumber & wood products	71,300	70,000	73,200
Food & kindred products	17,300	17,100	16,700
Other manufacturing	51,700	51,100	49,900
Total manufacturing	140,300	138,200	139,800
Contract construction	24,200	22,400	23,600
Retail trade	78,800	76,900	74,900
Government	94,300	92,900	90,400
Other manufacturing	152,800	151,700	149,500
Total manufacturing	350,100	343,900	338,400
Total Nonagricultural Wage and Salary Employment	490,400	482,100	478,200

Lumber. The figures below were reported by the West Coast Lumbermen's Association. They cover the Douglas fir area of the Pacific Northwest and are in thousands of feet, board measure.

	Apr. 1960	*Mar. 1960*	*Apr. 1959*
Average weekly production	168,696	175,633	169,015
Average weekly orders	157,915	145,924	179,386
Unfilled orders, end of month	632,991	655,791	677,903
Lumber inventory, end of month	1,244,913	1,222,432	923,186

Cash Receipts from Farm Marketing. The cumulative receipts from the sale of farm products were $74,077,000 for the first 3 months of 1960. This is a drop of 7 per cent from the 1959 cumulative total of $79,947,000 for 3 months. The following table shows the monthly comparisons in thousands of dollars, as reported by the U.S. Agricultural Marketing Service.

	1959	*1960*		*1959*
Jan.	$33,479	$29,796	July	$45,194
Feb.	21,901	23,076	Aug.	51,956
Mar.	24,117	21,205	Sept.	61,247
Apr.	21,693	.....	Oct.	41,256
May	19,148	.....	Nov.	29,153
June	31,614	.....	Dec.	39,359

Life Insurance Sales. During March 1960, sales of ordinary life insurance in Oregon were 28 per cent ($9,310,000) higher than in February 1960 and 11 per cent higher than in March 1959. The national figures showed a 19 per cent gain in comparison with February 1960 and practically no change in comparison with March 1959. This information comes from the Life Insurance Agency Management Association.

Retail food prices in Portland fell 0.2 per cent between February and March 1960, according to the U. S. Bureau of Labor Statistics. The decline was the second in a row and brought the total drop since the beginning of the year to one per cent. The March 1959 to March 1960 increase in food prices of 0.5 per cent would have been much greater except for a 5.0 per cent price decline in the important meats, poultry and fish group.

Banking. Loans, investments, and deposits of Oregon banks that belong to the Federal Reserve System are shown below (in millions of dollars):

	Mar. 1960	*Feb. 1960*	*Mar. 1959*
Loans	$ 929	$ 908	$ 811
Investments	624	644	722
Deposits	1,670	1,684	1,685

Construction. The Bureau of Business Research, in cooperation with the F. W. Dodge Corporation, reports March 1960 construction contracts in Oregon had a total value of $29,794,000. This is 8 per cent above March 1959. Comparative data, in thousands of dollars, follow:

	Mar. 1960	*Feb. 1960*	*Mar. 1959*
Nonresidential	$10,746	$ 5,712	$ 4,441
Residential	10,358	8,124	14,991
Public works & utilities	8,790	6,820	8,280
Totals	$29,794	$20,656	$27,712

Nonresidential construction was 1,015,000 square feet in March 1960 and 416,000 square feet in March 1959. In March 1960 contracts were bid for 790 residential units totaling 958,000 square feet. One year earlier there were 1,196 units totaling 1,441,000 square feet.

The cumulative total for the first 3 months of 1960 shows that the value of building contracts in Oregon was 8 per cent lower than for the comparable period of the previous year. For the eleven western states the cumulative 3 month total for 1960 was 2 per cent lower than for the previous year. The national total was 5 per cent lower for the first three months of 1960 than for the comparable period in 1959. The figures quoted in this paragraph do not include public works nor utilities.

Department Store Sales. Figures on department store sales are compiled by the Federal Reserve Bank of San Francisco for the Portland area, Eugene, and Salem. The data are released for Portland each week and once a month for all three cities and the state as a whole.

The most recent Portland area data are for the week ending May 14, 1960, when sales were 1 per cent below those of the corresponding week in 1959.

Sales for the three cities and for Oregon for the month of March and from January 1, 1960 to March 31, 1960 have been compared with those for the corresponding periods of time one year earlier. Percentage changes are shown in the following table:

	Mar. 1960	*Jan. 1, 1960 to Mar. 31, 1960*
Portland area	— 4	— 1
Eugene	+19	+23
Salem	0	+ 2
Oregon	— 2	0

Advertising Linage. Local retail advertising linage in 19 daily newspapers in Oregon was 1.5 per cent lower in April 1960 than in April 1959, according to records of the Oregon Newspaper Publishers Association.

Index of Man Hours in Manufacturing. A reliable index in manufacturing activity is the man hours of industrial production workers. The index is made by the Bureau of Business Research from data supplied by the State Department of Employment (1951=100). Figures apply only to personnel engaged in direct manufacturing; sales, office, and general administrative employees are excluded. No adjustment for seasonal variation has been made. The most recent reading for Oregon is for April 1960.

	1959	*1960*		*1959*
Jan.	79.1	82.9	July	100.2
Feb.	79.3	84.3	Aug.	107.4
Mar.	83.3	85.3	Sept.	102.9
Apr.	87.2	87.7	Oct.	97.6
May	92.1	.....	Nov.	94.1
June	98.6	.....	Dec.	89.6

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Business Failures. The Dun and Bradstreet series on commercial failures is considered an indicator of business health. The figures for Oregon follow.

Jan.	25	$ 515,000	41	$ 590,000
Feb.	38	909,000	45	1,229,000
Mar.	54	1,161,000	46	1,414,000
Apr.	29	497,000	49	995,000
May	42	632,000		
June	25	765,000		
July	52	953,000		
Aug.	56	1,015,000		
Sept.	34	531,000		
Oct.	36	660,000		
Nov.	39	594,000		
Dec.	41	1,550,000		

BANK DEBITS

Bank debits represent the dollar value of checks drawn against the deposit accounts of individuals and business firms. Bank debits are considered good indicators of current business activity. But their value for this purpose can be impaired if they include large checks used to transfer funds for the purchase of certain kinds of capital assets that are not "business activity." Each month the Bureau of Business Research collects data on bank debits from 190 banks and branches.

	Number of Banks Reporting	*Debits Apr. 1960*	*Debits Mar. 1960*	*Debits Apr. 1959*	*Mar. 1960 compared with Mar. 1960*	*Mar. 1960 compared with Apr. 1959*
Oregon	190	$2,064,591,239	$2,026,147,178	$1,889,226,774	+ 1.9	+ 9.3
Portland area (Multnomah, Washington, Clackamas, Columbia counties)	62	1,344,482,053	1,338,946,210	1,201,257,725	+ 0.4	+11.9
Mid-Willamette Valley (Polk, Benton, Linn, Marion, Yamhill counties)	40	231,451,291	214,386,134	221,479,115	+ 8.0	+ 4.5
North Oregon Coast (Tillamook, Clatsop, Lincoln counties)	10	34,230,120	33,728,110	31,995,584	+ 1.5	+ 7.0
West Central Oregon (Douglas, Lane, Coos counties)	22	181,781,013	169,298,049	174,326,693	+ 7.4	+ 4.3
Southwestern Oregon (Curry, Jackson, Josephine counties)	13	92,705,353	87,033,526	86,383,293	+ 6.5	+ 7.3
Upper Columbia River (Sherman, Hood River, Wasco, Gilliam, Wheeler counties)	9	28,096,174	26,503,339	25,381,852	+ 6.0	+10.7
Pendleton area (Umatilla, Morrow counties)	8	31,573,505	33,093,603	29,322,429	− 4.6	+ 7.7
Central Oregon(Deschutes, Crook, Jefferson counties)	5	31,339,712	32,032,287	30,031,981	− 2.2	+ 4.4
Klamath Falls area (Klamath, Lake counties)	7	37,025,050	36,152,981	36,117,509	+ 2.4	+ 2.5
Baker, La Grande area (Baker, Grant, Wallowa, Union counties)	9	26,618,389	27,452,038	27,113,454	− 3.0	− 1.8
Burns area (Harney, Malheur counties)	5	25,288,579	27,520,301	25,817,139	− 8.1	− 2.0

BUILDING PERMITS

Building permits are a report of plans rather than of construction in actual operation. Interpretation of these data must allow for time elapsed between the issuing of the permit and the beginning of construction. The information has been collected by the Bureau of Business Research from building departments in local governments.

	New Residential Apr. 1960	*New Non-Residential Apr. 1960*	*Additions Alterations & Repairs Apr.1960*	*Totals Apr. 1960*	*Totals Mar. 1960*	*Totals Apr. 1959*
Albany	$ 118,690	$ 500	$ 1,200	$ 120,390	$ 250,350	$ 264,001
Baker	45,300	25,150	1,575	72,025	23,118	154,010
Beaverton	212,900	64,100	13,924	290,924	293,838	225,980
Bend	68,500	79,400	28,245	176,145	103,395	99,795
Coos Bay	15,000	171,988	4,595	191,583	70,915	127,695
Corvallis	291,000	79,850	4,100	374,950	414,850	415,070
Eugene	492,915	1,352,150	323,415	2,168,480	981,070	742,770
Grants Pass	77,500	28,825	13,900	120,225	137,150	182,950
Hillsboro	244,750	750	41,855	287,355	194,100	295,200
Klamath Falls	192,500	——	95,675	288,175	77,182	168,010
La Grande	19,398	——	9,003	28,401	56,155	95,680
McMinnville	44,000	5,300	3,550	52,850	71,325	82,441
Medford	193,000	160,179	20,925	674,104	311,776	270,630
Milwaukie	85,190	1,600	920	87,710	376,065	692,636
North Bend	12,492	5,740	5,340	23,572	71,365	334,168
Pendleton	66,000	330,800	24,467	421,267	34,439	112,320
Portland	2,121,720	1,047,470	1,240,705	4,409,895	3,926,835	9,821,770
Roseburg	54,979	75,000	149,030	279,009	207,928	122,163
Salem	318,000	78,161	72,909	469,070	431,760	321,042
Springfield	21,500	51,613	13,912	87,025	50,614	84,031
The Dalles	63,000	14,500	6,608	84,108	80,300	94,540
Clackamas County	728,075	169,516	20,650	918,241	860,389	878,135
Douglas County	81,600	33,218	10,860	125,678	121,716	231,739
Lane County	1,027,293	765,148	92,277	1,884,718	1,124,180	1,159,973
Marion County	710,518	56,050	126,955	893,523	1,713,845	1,135,457
Multnomah County	2,748,000	498,955	270,967	3,518,868	2,689,749	3,030,140
114 other communities	1,218,005	1,540,887	386,716	3,145,608	3,873,731	2,192,622
Totals	$11,272,731	$6,936,890	$2,984,278	$21,193,899	$18,548,140	$23,334,968